Imperial Agricultural Bureaux

Fourteenth Annual Report

OF THE

Executive Council

1942-1943

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IMPERIAL AGRICULTURAL BUREAUX

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PREFACE

The Imperial Agricultural Research Conference, 1927, stressed (*a*) the need for scientists to be in touch with the progress of research throughout the world in their several branches, and (*b*) the difficulty therein owing to the great output of scientific literature and the diversity of languages in which it is published.

2. It recommended the Governments of the British Commonwealth to establish on a joint co-operative basis eight bureaux to collect, collate and disseminate information on research in eight selected branches of agricultural science and generally to assist research workers in the Empire with information relevant to their subjects. Each bureau was to be located at a research Institute specializing in its own branch of science so that the bureau officers should be in daily contact with men engaged on research in its own subject. These bureaux were to be financed from a common fund contributed by Empire Governments in agreed proportions and controlled by a Council composed of representatives of those governments on an equal footing.

3. Governments accepted these proposals. In November, 1928, a new type of inter-Imperial co-operative agency acceptable to all governments was worked out in detail. On 1st April, 1929, the Executive Council of the Imperial Agricultural Bureaux came into being. The eight bureaux started work in that year.

4. Following the Ottawa Conference of 1932 the work of several inter-Imperial agencies was examined and reported upon by the Imperial Committee on Economic Consultation and Co-operation (1933). This Committee approved of the bureaux organization and of its work, and extended the duties of the Council, *inter alia* proposing that with effect from 1st October, 1933, it should also be responsible for the supervision and administration and finance of the Imperial Institute of Entomology and of the Imperial Mycological Institute.

5. It also enunciated certain general principles to be observed in regard to the organization of agencies for inter-Imperial co-operation and consultation, *e.g.*, Constitutional equality of participating governments in the appointment of the Authority administering the work; the provision of adequate finance for a definite period of years; careful and periodical examination of the work and organization of the Agency at Empire conferences suitable for the purpose, as without that assurance governments could hardly be expected to provide the adequate continuing finance; responsibility of the administering authority to all participating governments. All Governments accepted this report.

6. The British Commonwealth Scientific Conference (1936) conducted the first of these "periodical examinations." It approved both the work and organization. It recommended the finance necessary until 1941/42, its distribution between governments, also the formation of two more bureaux, and certain modifications in practice designed to improve general efficiency. Governments accepted these proposals.

7. The organizations under the administration of the Executive Council are :—

The Imperial Institute of Entomology, with its branch, the Laboratory for Biological Control of Insect Pests.

The Imperial Mycological Institute and the Imperial Bureaux of

Soil Science.
Animal Health.
Animal Nutrition.
Animal Breeding and Genetics.
Plant Breeding and Genetics.
Pastures and Forage Crops.
Horticulture and Plantation Crops.
Agricultural Parasitology (Helminthology).
Dairy Science.
Forestry.

8. A "liaison" officer appointed by the appropriate department in each participating country keeps in touch with administrative matters, and in each country for each bureau a scientific officer is nominated as Official Correspondent to be "the general friend" on scientific matters of that bureau in that country. The Heads of the several Institutes at which bureaux are located act as Directors of the bureaux, thus giving the Council and bureaux the benefit of their wide experience and scientific knowledge. All other officers are whole-time servants of the Executive Council.

As a war economy, the usual list of publications has been omitted from this report. Copies of the 1943 List are however, available for those desirious of consulting them, and will be supplied on application to :

The Imperial Agricultural Bureaux, Central Sales Branch,
Agricultural Research Building, Penglais, Aberystwyth, Wales,
or to The Secretary, Imperial Agricultural Bureaux,
2, Queen Anne's Gate Buildings, Dartmouth Street, London, S.W.1.

REPORT

At its meeting on the 22nd March, 1944, the Executive Council of the Imperial Agricultural Bureaux adopted the following report on its fourteenth year's work—1st April, 1942, to 31st March, 1943.

2. During the year Lt.-Col. J. G. Robertson and Mr. A. L. Poole joined the Council as representatives of Canada and New Zealand respectively, succeeding the late Dr. William Allen and Mr. Nevill Wright. Mr. Nevill Wright had taken part in the organization of the bureaux in 1928, had been an original member of the Council, had served as its Chairman and was well known to all bureaux officers.

3. Sir Guy Marshall retired from the office of Director of the Imperial Institute of Entomology on 31st July, 1942. He had been its senior officer through all its stages of development from the Entomological Research Committee (Tropical Africa) of 1909 to a co-operative imperial organization. He was personally well known to entomologists in all countries of the British Commonwealth. This Institute, and, indeed the whole bureau organization, owes much to the pioneer work of Sir Guy Marshall and Dr. S. A. Neave, who has been associated with him since 1910 and has now succeeded him in the Directorship. The Council wishes to record its great appreciation of Sir Guy's services.

4. During the year, Dr. W. J. Hall, D.Sc., who has had much entomological experience in Egypt, South Africa and Southern Rhodesia, was appointed to one of the vacant posts of Senior Entomologist. Owing to transport difficulties he did not join duty until May, 1943. Applications were invited through the British Commonwealth for two other senior entomological posts which were or will shortly fall vacant. The response was large. Owing to postal difficulties in the receipt of some applications the selections were delayed. Ultimately Dr. T. H. C. Taylor (Uganda) and Dr. J. W. Evans (Tasmania) were offered and accepted the posts. They are likely to join duty in 1944/45.

Lord Hankey's Committee

5. The British Commonwealth Scientific Conference, 1936, had proposed that the work of the bureaux should be examined by a similar Conference to assemble in 1941. The war made that impossible. Examination of the work in hand was thus not only overdue but the war might be producing conditions which would call for changes therein. The Executive Council felt that an examination of the methods and work by an authoritative Committee was desirable. They are very greatly indebted to the Rt. Hon. Lord Hankey, G.C.B., F.R.S., for responding to their request to be Chairman of a Committee to examine and report on the work of the bureaux and to the President of the Royal Society, Sir Henry Dale, to Sir Thomas Holland, Principal of Edinburgh University, Mr. Dalling, Professor Engledow, Sir John Orr, Mr. Robertson and Dr. Tempany for serving upon it. The late Dr. W. W. C. Topley, of the Agricultural Research Council, was also a member of the Committee, and two Council members served on it—Mr. Lall and Mr. McDougall.

The terms of reference were :—

> "To review and report to the Executive Council on the present activities of the Imperial Agricultural Bureaux and to consider in the light of this experience whether, and if so how, the activities of the bureaux can be directed or developed, so as to be of greater service to the British Commonwealth of Nations and in general to the United Nations."

6. The Committee's report, which was issued in August, 1943, has been published. Copies have been submitted to all governments. Copies (price 1s.) are available from the Secretary to the Council or from the Central Sales Branch of the Bureaux, Aberystwyth, Wales. The main finding of the Committee was that :—

> "The progressive application of the natural sciences to the management of crops, livestock and forestry forms an activity sufficiently large and distinct to be the concern of a service of information organized for that purpose."

The bureaux by their organization and methods were well fitted to give that service, and their progressive development for that purpose should be the main objective. Information services on other aspects of agriculture, *e.g.*, economic and social, or on the application of the natural sciences to medicine and industry, would require methods and staff suited to those conditions ; but, if and as such services were developed, liaison between them and the bureaux should be established.

For the efficient working of the bureaux the Committee emphasized the need for close personal contacts between officers in them and the scientists and officers in the different countries they serve. The war had adversely affected those personal relations. This matter would require attention as soon as circumstances allowed, for, to let the bureaux drift into the position of a detached library service was to curtail their usefulness.

Closer co-operation between the bureaux was strongly recommended as well as several improvements in their detailed working. As regards the subjects covered by the bureaux the Committee considered that one to deal specifically with information on General Husbandry and Farm Systems was needed. Its relation with certain of the existing bureaux would require working out.

7. The Committee stated that it had had no opportunities for consultation and discussion with scientists and officers from countries overseas, and to that extent its enquiry and report were incomplete. Many of those officers would doubtless have other suggestions and proposals to bring forward.

8. When the Committee was considering its report the Resolutions adopted by the United Nations Conference at Hot Springs on Agriculture and Nutrition were published. Among the other subjects there mentioned, was that

> " of assisting in a comprehensive abstracting service covering the whole range of agricultural research,"

and among the general instructions was

> " to give full consideration to—
>
> (*a*) the relation of the permanent organization to and methods of associating it with other institutions, national as well as international, which already exist, or which may hereafter be established, in the field of food and agriculture and in related scientific . . . fields."

The Committee therefore requested that its report be brought to the notice of the Interim Commission which was to be charged with the task of working out the Permanent Organization envisaged by the Hot Springs Conference. Members of the Council promptly brought this recommendation to the notice of their governments, who agreed and did so. Further, the senior member of the Council, Mr. F. L. McDougall, is a member of the Interim Commission. The general history of the bureaux, the scope of their work and the characteristics of their organization were thus made known to the Interim Commission.

General

9. In general, conditions in 1942–43 were very similar to those of 1941–42. The intensification of the war in the Far East, the extended invasion of Russia, reduced further the number of subscribers to the journals and cut off certain supplies of information. The greater calls for National Service in the United Kingdom caused constant review and changes in the non-scientific staffs at the bureaux. These were the general adverse conditions of the time. Against those, publications from Empire countries arrived with great regularity. Also chiefly through the help of His Majesty's Stationery Office and the British Council, more foreign Journals were received than in the previous year. The continuity of all the Abstract Journals has been maintained, and the bureaux with their reduced staffs were kept employed. In some cases, in which reductions had gone too far, assistants had to be engaged.

The Council acknowledges the help its officers have consistently received from many United Kingdom departments, especially from the Ministry of Agriculture and the Agricultural Research Council, in the difficulties arising from war conditions and controls.

10. Subscribers in enemy and enemy occupied countries to bureaux publications have been temporarily lost, as have many in those of the United nations with which communications have become very difficult, such as Russia and China. The exact number of this loss is not known, as many subscribers, especially those in foreign countries, ordered their copies through London booksellers. Where these do not disclose the address to which such copies are ultimately to go, those sales were necessarily recorded as made to a purchaser in the British Commonwealth. So far as is known, the sales to foreign enemy and enemy occupied countries in Europe and Asia in 1938–39 were 581 and 273 respectively (total 854), and to Russia and China 278 and 69 respectively (total 347). For the reason just given these figures understate the number of subscribers in those countries in 1938–39, yet their total, 1,201, would more than account for the reduction in receipts in 1942–43 as compared with those of 1938–39 (*vide* table in next paragraph). In other words, in spite of the war the total circulation of these publications to countries of the British Commonwealth and to the U.S.A. has increased. In 1942–43 the distribution of journals was as follows :—

To countries of the British Commonwealth and Anglo-Egyptian Sudan	4,397 (*a*)
To U.S.A.	1,311
To other foreign countries	529
Total ..	6,237

(*a*) Of this number 2,407 are sent out free under the " quota " system.

The older and better known organizations, and especially the Imperial Institute of Entomology, the oldest of them all, have suffered the most through the loss of foreign subscribers. In their cases, and in one or two of the bureaux, subscribers in 1942/43 were fewer than in 1938/39.

Publications

11. In 1942–43 receipts from sales of publications (£7,959) were £1,212 below those in 1941–42 (£9,171). In great measure this was due to the fact that in 1941–42 a Consolidated Index of the first five volumes of Nutrition Abstracts was issued which, in the year of its publication, brought in £755. That, of course, has not been repeated.

	1936–37	1937–38	1938–39	1939–40	1940–41	1941–42	1942–43
	£	£	£	£	£	£	£
Imperial Institute of Entomology ..	2,524	2,779	2,444	2,037	1,798	1,885	1,692
Imperial Mycological Institute ..	699	961	1,092	904	670	843	799
The Bureaux, including Nutrition Abstracts and Reviews	4,714	5,068	5,704	5,910	5,247	6,443	5,468
	7,937	8,808	9,240	8,851	7,715	9,171	7,959

The figures for the several bureaux are as follows :—

	1936–37	1937–38	1938–39	1939–40	1940–41	1941–42	1942–43
	£	£	£	£	£	£	£
Soil Science	276	306	600	478	358	399	308
Animal Health	1,373	1,293	1,166	1,146	1,084	1,174	1,219
Animal Nutrition	12	29	25	21	29	50	45
Animal Breeding and Genetics ..	156	229	294	203	227	188	232
Horticulture and Plantation Crops ..	151	241	373	393	286	417	308
Pastures and Forage Crops	217	444	521	413	422	348	250
Plant Breeding and Genetics	268	258	314	406	320	334	240
Agricultural Parasitology (Helminthology)	295	364	316	228	224	198	236
Dairy Science	—	—	5	335	283	270	300
Forestry	—	—	3	202	195	237	229
Headquarters	46	2	17	19	22	16	7
Total	2,794	3,166	3,634	3,844	3,450	3,631	3,374
Nutrition Abstracts and Reviews } Journal ..	1,920	1,902	2,070	2,066	1,797	2,057	2,098
Nutrition Abstracts and Reviews } Index	—	—	—	—	—	755	— 4
Total	4,714	5,068	5,704	5,910	5,247	6,443	5,468

The debit balance of £4 on the Index of Nutrition Abstracts and Reviews was due to the return of some trade copies.

12. Technical Communications issued during the year were :—

	Issued by the Bureau of
The "Take-all" Diseases of Cereals.	Soil Science
Bibliography of Phenothiazine as an Anti-helminthic.	Agricultural Parasitology.
New and Promising Varieties of Plants recently described in Literature (4th List).	Plant Breeding and Genetics.
Gas Producers for Motor Vehicles and their operation from Forest Fuels.	Forestry.
Wood Waste Utilization (reprint).	Forestry.
Anti-bacterial Agents derived from Micro-organisms (reprint).	Animal Health.

Others in preparation included :—

The Production of Seed from Root Crops and Vegetables.

Alternate Husbandry.
Imperata Cylindrica: Its Economic Significance and Control.
The Mineralogy of Soil Colloids.
Bibliography on Insect Pest Resistance in Agricultural Plants.
Photo-periodism in the Potato.
Gestation Periods of Animals—Table and Bibliography.
Propagation by Cuttings and Layers.

Towards the end of the year the Agricultural Research Council kindly gave the bureaux for issue as a Technical Communication an account of "Co-ordinated Trials with Phenothiazine against Nematodes in Lambs." Published reports on the usefulness of phenothiazine as an anti-helminthic were conflicting. Also different criteria had been employed by different workers in estimating its effects. The Agricultural Research Council accordingly organized a series of co-ordinated trials at several centres, so planned as to be susceptible of adequate statistical analysis. The report on these trials was issued in 1943–44 jointly from the bureaux of Animal Health and Animal Parasitology. Broadly speaking, the results were favourable to the use of phenothiazine, but the report needs careful study. The subject is one of great practical importance to many countries.

The Imperial Institute of Entomology

13. The number of subscribers fell in the year from 499 to 397 for Series A, and from 447 to 381 for Series B of the Review of Applied Entomology. In 1939 the corresponding numbers were 637 and 464.

For the Bulletin of Entomological Research the number of subscribers fell from 326 to 297, which compares with 406 in 1939.

The number of specimens received for identification was very similar to that of 1942, viz. 10,674, as compared with 10,229. They came from 65 (39) different correspondents. In 1938–39, 85,460 were received from 193 different correspondents. This was more than could be dealt with in a year. Although the senior staff was under strength (*see* paragraph 4) and outside assistance was less than in pre-war years, progress was made in 1943 with the arrears. One hundred and nine lists of identifications comprising 1,848 names were sent out in 1942–43. Of the specimens (1,850) handed over to the British Museum 50 were new to science and 37 were species not previously represented in the National Collection.

The Director's report is printed in Appendix I.

Imperial Parasite Service

14. The Parasite Service has continued to work from Belleville, Canada. A comprehensive report prepared by Dr. Thompson dealing with the search for and despatch of beneficial parasites from the time of his transfer to Canada up to 31st March, 1943, was submitted to governments in August, 1943. It has also been printed and put on sale. The substance of it is accordingly not repeated here; reference to it is requested. In addition to the collection of beneficial parasites much progress was made in the preparation for publication of the Parasite Catalogue. Close and continuous work was put into it in an attempt to make it as accurate, convenient and complete as possible. In this, very valuable assistance has been received from systematists in the Division of Entomology in Ottawa under the direction of Dr. J. H. McDunnough, and in the United States Bureau of Entomology under the direction of Mr. C. F. W. Mueseback. Their generous and expert help enabled difficulties mainly turning on nomenclature to be surmounted. The Council is very grateful for this help. The preparation of this Catalogue has been a very laborious undertaking, but the form is settled, the nature of the difficulties and the ways to meet them are known. The first two parts have been published in 1943/44. The Council trusts that entomologists everywhere will find in this Catalogue a useful and safe guide to the recorded observations on the occurrence, nature and habits of the parasites they seek.

15. As will be readily understood, many administrative questions arose in re-forming this service in a distant country in war-time, both administrative, such as disparities between Canadian and English scales of salaries, differences in bonuses for cost of living, and in connection with work on particular projects. Dr. Swaine and all the Canadian authorities had been most helpful since Dr. Thompson's transfer in 1940 and on the many points on which his advice was sought. In 1942, with the Deputy Minister's approval, Dr. Swaine offered, provided the Council wished, to organize a small advisory committee in Canada to keep in touch with this parasite work and advise the Council thereon. The Council accepted this offer very gratefully. The Council remained responsible for the work, but asked Dr. Swaine to extend the functions of his committee somewhat further than he had suggested, so that it exercise a general supervision over both the scientific and administrative work of the Parasite Service whilst it is working in Canada. Dr. Swaine has agreed. He invited to serve on the committee Mr. L. S. McLaine, the Dominion entomologist, Dr. W. H. Brittain, Dean of Macdonald College, McGill University, and Dr. E. H. Walker, of the University of Toronto. His own assistant, Mr. H. L. Trueman, was to be secretary. The committee was formed about

Christmas, 1942. It was with great regret that we heard in 1943 of the death of Mr. McLaine. The committee immediately proved of great help to the Council and it will certainly be of assistance to Dr. Thompson.

The Imperial Mycological Institute

16. The Director's Report is printed as Appendix II. In addition to investigational work, it records much progress in the year of bibliographical work of a fundamental kind. Dr. Bisby and Dr. Ainsworth completed for the Press their "Dictionary of the Fungi." This was published in the autumn of 1943. It is an index of the genera of the fungi, their systematic position, the distribution and number of the species. To mycologists, whether their work is in systematic or applied mycology, it should prove a most useful tool. The reviews which have so far appeared in scientific journals have been favourable.

Progress has also been made in the difficult matter of virus nomenclature.

17. Reference was made in last year's report to the issue of maps showing the distribution throughout the world of each of the more important fungi. These are clearly meeting a need. The subscribers to them number 180.

Finance and Accounts

18. The Comptroller and Auditor General has audited and certified the accounts for 1942–43 of the bureaux, of the Imperial Institute of Entomology and of the Imperial Mycological Institute. Copies are attached to this report.

19. The contributions due from governments in 1942–43 and the amounts received within the year are as follows :—

	Due from Governments		Received in the year.	Outstanding on 31.3.43.
	Annual Normal.	Outstanding on 31.3.42.		
	£	£ s. d.	£ s. d.	£ s. d.
The Bureaux	27,800	49 17 6	27,266 17 9	583 19 9
Imperial Institute of Entomology	13,442	600 0 0	13,270 19 2	771 0 10
Imperial Mycological Institute	7,900	400 0 0	7,812 14 11	487 5 1
Imperial Parasite Service	5,075	11 11 6 650 0 0	5,736 11 6	42 0 3

The sums outstanding on 31st March, 1942, were all received before the annual report for that year was issued; and the sums shown in the last column above as outstanding on 31st March, 1943, have all since been received. Contributions from all governments are therefore fully paid up to 31st March, 1943, in each fund. The Government of Canada has decided to maintain its contribution to the Parasite Service for 1941–42 at its full normal rate of £1,250. Part of this sum, £650, was received after 31st March, 1942. This is the £650 shown in column 2 above.

20. Attention was drawn in the report of 1941–42 to the adverse financial effect of mounting war bonuses, and normal increments in salaries coupled with contraction in receipts from sales of publications. In the bureaux total outgoings in the year exceeded receipts by £1,773 10s. 4d., which has come out of balances to credit; in the Institutes receipts covered outgoings owing, in the case of Entomology, to senior posts being unfilled (paragraph 4), and in the case of Mycology to savings under various heads. Since 31st March, 1943, war bonuses in the Civil Service have been further increased. These, with normal increments to staff and rises in printing costs, will tell increasingly on all the funds.

21. Gross expenditure in the Imperial Parasite Service increased in the year from £4,983 6s. 2d. to £7,263. This was the direct result of the increase in the demands for work to be done. In 1941–42 the funds received for special work totalled £2,232 15s. 7d., and in 1942–43 they were £2,796 13s. 6d. In view of these demands the scientific staff has been strengthened. Mr. Simmonds, one of the former junior assistants, was sent to Canada in August, 1942, and in January, 1943, Mr. W. F. Sellers was appointed to a senior post on the staff. Mr. Sellers was an entomologist of standing with many years of experience of biological control work in the United States Department. Throughout 1942–43 there were thus three entomologists on Dr. Thompson's regular staff—Mr. Sellers, Dr. Lloyd and Mr. Simmonds. They were kept fully occupied throughout the year–*vide* Dr. Thompson's report referred to in paragraph 14 above.

Mr. Jeffery, the former clerk at Farnham House, was also sent to Canada during the year to help with the office work and also with the Parasite Catalogue, in the preparation of which much progress was made.

22. The £3,200 shown in the accounts as remitted to Canada consisted of £2,925 on general account and £275 as payment for special work to be done in Canada. £1,600, viz. £1,450 on general account and £150 for special work, of this sum was in course of transit to Canada on 31st March, 1943.

South American Potatoes

23. 1942/43 was the first year of the enlarged scheme of work described in the report for 1941–42. All governments, in accepting the scheme, had welcomed the idea that the scientists who should work on these potatoes should be drawn from different countries in the Empire. The demands on man-power in their countries, however, prevented them from releasing any of their own officers for this work. Only one with overseas experience has so far been obtained. Mr. C. M. Driver, who had been engaged on plant genetical work on potatoes in New Zealand before the war, was serving in the Royal Navy. The Admiralty has kindly released him for this scientific work. This general difficulty in recruiting staff caused certain modifications in the sequence of the work to be undertaken. In view of what happened this delay in recruiting staff has not been a disadvantage.

24. The scientific staff under the Council working whole time on these potatoes were Dr. Hawkes, Mr. Driver assisted by Dr. Köppel, and a temporary assistant working in the Dunn Nutritional Laboratory. In addition to these, very valuable assistance in studying and recording the physiological qualities in this collection has been and is being given by the officers in several research institutes, notably those at Cambridge. To all these the Council is much indebted and especially to Dr. Kenneth Smith and Mr. Wortley of the Virus Research Station and to the Dunn Nutritional Laboratory.

25. Although it entails taking the account beyond the date to which this report strictly relates (viz. 31st March, 1943), a summary of the scientific work done and in progress by the end of the growing season 1943 gives a much better picture of the position and possibilities than one restricted to 31st March, 1943.

The collection consisted of 1,345 varieties of which 150 (*vide* below) have been lost or destroyed. Further samples are still being received from time to time from correspondents in South America.

26. By the beginning of November, 1943, the position of various lines of work was as follows :—

(i) Classification, description and chromosome count. Complete except for a few samples recently received. The results have been written in a Technical Communication now (January, 1944) in the press.

(ii) A preliminary study of photoperiodism in the potato has been made and the results recorded in a Technical Communication which was published in December, 1943 (price 2s. 6d.).

(iii) Virus content—550 lines had been tested for virus content. It is of the utmost importance (*vide* paragraph 25) to test the whole collection for susceptibility, and then, for resistance, to the various virus diseases.

(iv) Frost resistance—i.e. resistance to −3° C. 1,000 lines tested, of which 173 have shown varying degrees of resistance.

(v) Wart resistance—157 lines tested, of which several show resistance.

(vi) Eelworm resistance—about 200 lines were being tested, among which some are showing resistance.

(vii) Resistance to Phytophora—whole collection treated for leaf resistance. Large numbers of the Mexican lines immune or highly resistant.
The tubers have still to be tested.

(viii) Chemical constitution : about 700 lines tested for protein, vitamin C and dry matter. Some have shown high protein and vitamin content.

(ix) Cooking tests : a little over 200 lines have been tested.

In this wide range of examination assistance has been received from the Low Temperature Research Station, Cambridge, the Ministry of Agriculture's Mycological Station, the School of Agriculture, Cambridge, the Institute of Agricultural Parasitology and the Agricultural Stations attached to King's College, Newcastle-on-Tyne, and at Ormskirk, Lancashire.

27. It is clear from the above that very desirable characteristics exist in the collection. Serious dangers to the collection, however, began to appear after the growing season of 1942 and others became manifest in the summer of 1943. The officers at the Virus Research Station found in the autumn of 1942 that some 34 lines of the potatoes in the collection carried a virus new to the United Kingdom. That was a danger to the United Kingdom and to any country which might receive those varieties. The Plant Protection officers of the United Kingdom required that these so infected should be destroyed—that was done—and the whole collection grown under stricter conditions of

control—that meant more insect-proof greenhouses —until every one has been thoroughly tested for virus.

That in itself was sufficient reason for providing better accommodation for this work. But the need for it was further emphasised in the summer of 1943, when it became clear that some of the varieties were being affected by viruses common in the United Kingdom, viz. those known as X and Y, and unless protected therefrom would ultimately perish.

The position in the autumn of 1943 was as follows :—

Number tested and found free from sap transmissible viruses	238
Number with venal necrosis	34
Number with both X and Y	73
Number with either X or Y	210
Untested but severely infected	11
Number as yet untested	779
	1,345

Viruses are not transmitted through the seed ; and the number which were either virus free or from which seed had been procured was about 1,000.

It has been stated in paragraph 25 that 150 of these 1,345 lines have been lost or destroyed. This number includes those destroyed on account of virus infection.

28. The number of specimens sent to different countries up to April, 1943, was as follows :—

Country.	*No. of Specimens sent.*
Canada	541
Ceylon	452
India	435
Australia (*a*)	241
New Zealand	148
Malaya	117
Trinidad	20
Uganda	12
Sudan	12
Tanganyika	8

(*a*) Another 526 have been packed for despatch but were returned as no shipping space was available.

29. Governments were informed by letter dated 22nd April, 1943, of the position which had arisen. Stricter growing conditions meant more and better glasshouses, which meant more capital expenditure than £1,000 originally forecast and so far almost entirely unspent. The Council reported that its only course was to use on capital account some of the funds provided for recurring charges. Canada reported that virus in one form or another had been found very general in the specimens it had received and expressed the opinion that the proposal would be justified only if " the scientists at Cambridge were very reasonably satisfied that the infection or liability to infection would be adequately prevented by the measures proposed." Other countries raised no question. India later reported that virus had not been noticed in the specimens it had received.

30. Meanwhile the bureau informed its correspondents in countries to which specimens had been sent of the occurrence of this virus, with the identification numbers of the specimens in which it had been detected. This was a precautionary step.

Detailed examination of plans for building which would meet the requirements of the Plant Protection officers of the Ministry and would secure protection against infection from local viruses caused a revision of estimates, with the result that the capital cost will exceed that forecast in April, 1943. Governments have been kept informed and a special report thereon will shortly be submitted to them.

31. *Finance*—All contributions due to 31st March, 1943, had been received by that date. With the difficulties detailed above in the first year of the new scheme, there was some saving ; but this will be required as those difficulties are surmounted.

The Research Schemes

32. 1941–42 was the last of the five years for which the Government of the Union of South Africa had undertaken to contribute to research into the transport and carriage of perishable foods. The Governments of New Zealand and Southern Rhodesia continued their contributions in 1942–43 at the same sums as in 1941–42. To the Wool Industries Research Association the same governments contributed in the same amounts in 1942–43 as in 1941–42. All sums due were received within the year and paid over to these research organizations. They were :—

Food Investigation Board (for Low Temperature Research)—	
New Zealand	£500
Southern Rhodesia	£50
Total ..	£550
Wool Industries Research Association—	
Australia	£1,000
The Union of South Africa ..	£400
New Zealand	£50
Total	£1,450

Chairman

33. Mr. S. Lall returned to India about the time he completed his two years' term of office as Chairman. Mr. G. H. Creasy, who succeeded Mr. J. A. Calder as representative of the Colonies on the Council in May, 1943, has been elected Chairman of the Executive Council, and Lt.-Col J. G. Robertson, the representative of Canada Vice-Chairman.

GERALD CREASY,
Chairman.

EXECUTIVE COUNCIL, IMPERIAL AGRICULTURAL BUREAUX

ACCOUNT OF RECEIPTS AND PAYMENTS FOR THE YEAR ENDED 31ST MARCH, 1943.

RECEIPTS.

	£ s. d.	£ s. d.
Balance on 1st April, 1942.		
General Account ..	1,156 18 8	
Potato Expedition Fund	532 17 9	
Journal of Dairy Research	100 0 1	
		1,789 16 6
Contributions from the Governments of the Empire and Sudan.		
(*a*) Imperial Agricultural Bureaux		27,266 17 9
(*b*) Various Institutes	13,884 13 1	
Less: paid over	13,882 16 9	
		1 16 4
(*c*) Potato Expedition Fund		4,692 10 0
(*d*) Journal of Dairy Research		213 9 6
Contributions by Institutes towards cost of Head-quarters		325 0 0
Interest and Dividends ..		576 3 2
Sale of Wastepaper ..		5 9 5
		£34,871 2 8

I have examined the above Account. I have obtained all the information and explanations that I have required, and I certify, as the result of my audit, that in my opinion the above account is correct.

(Signed) G. C. UPCOTT,
Comptroller and Auditor General.

PAYMENTS.

	Expenditure. £ s. d.	Less Receipts for Sale of Publications, etc. £ s. d.	Net Expenditure. £ s. d.
Expenditure incurred by the Imperial Bureau of :—			
Soil Science (Rothamsted)	2,562 18 9	307 19 11	2,254 18 10
Animal Health (Weybridge) ..	6,448 5 11	1,219 6 0	5,228 19 11
Animal Nutrition (Aberdeen) ..	3,384 15 5	44 14 0	3,340 1 5
Animal Breeding and Genetics (Edinburgh)	2,745 1 6	231 17 3	2,513 4 3
Pastures and Forage Crops (Aberystwyth)	3,928 15 3	250 1 6	3,678 13 9
Plant Breeding and Genetics (Cambridge)	2,948 12 1	239 12 11	2,708 19 2
Horticulture and Plantation Crops (East Malling)	2,320 5 3	308 0 8	2,012 4 7
Agricultural Parasitology (St. Albans)	1,936 6 4	235 19 1	1,700 7 3
Dairy Science (Shinfield)	2,023 10 10	299 15 4	1,723 15 6
Forestry (Oxford)	2,506 1 9	229 5 10	2,276 15 11
Secretariat	2,515 18 2	6 18 1	2,509 0 1
	33,320 11 3	3,373 10 7	29,947 0 8
Potato Expedition Fund			1,650 11 7
Journal of Dairy Research			213 9 7
Deposited in Post Office Savings Bank			2,730 13 2
Balance at 31st March, 1943.			
H.M. Paymaster General ..	1,606 12 2		
Sub-Accountants and Deposit Accounts	1,009 5 4		
	2,615 17 6		
Less Outstanding Orders.. ..	2,286 9 10		
			329 7 8
			£34,871 2 8

Investments at 31st March, 1943.	
£4,000 5% Conversion Loan 1944/64 at cost	4,152 16 0
£2,000 4% Commonwealth of Australia regd. stock 1955/70 at cost	1,940 4 0
£4,000 3% ,, ,, ,, ,, ,, 1939/44 at cost	3,959 14 6
Post Office Savings Bank	8,353 16 4

The above includes sums held on behalf of :—
(1) Potato Expedition Fund .. £3,574 16 2
(2) Journal of Dairy Research 100 0 0

(Signed) W. G. IVES,
Accountant to Council.

(Signed) DAVID CHADWICK,
Secretary.

EXECUTIVE COUNCIL,
IMPERIAL AGRICULTURAL BUREAUX.
1st February, 1944.

IMPERIAL INSTITUTE OF ENTOMOLOGY

Account of Receipts and Payments for the Year ended 31st March, 1943.

RECEIPTS.

	£ s. d.	£ s. d.
Balance on 1st April, 1942.		8,233 1 9
Contributions from :—		
Empire Governments ..	13,270 19 2	
Foreign Governments ..	375 0 0	
Societies	150 0 0	
		13,795 19 2
Interest and Dividends ..		506 6 1
Sale of Publications ..		1,692 6 11
Board of Trade (War Damage) Refund of value of books destroyed		38 8 4
Australian Government : Grant for work on special projects	232 3 10	
Less expenditure directly chargeable thereto ..	60 14 1	
		171 9 9
		£24,437 12 0

PAYMENTS.

	£ s. d.	£ s. d.
Salaries, Director, etc.		1,916 13 4
F.S.S.U. contributions		186 16 0
Salaries, Scientific Staff, etc.		7,169 11 11
F.S.S.U. contributions		765 0 0
Salaries, whole-time staff		2,198 4 10
F.S.S.U. contributions		179 7 0
National Insurance		55 16 1
Travelling expenses		4 0
Books, Publications		94 19 6
Bulletins		2,201 2 7
Stationery, Postages, Telephones		104 10 10
Rent, Rates, Insurance		375 13 2
Housekeeping, Light, Heat, Water, Cleaning		257 7 1
Laboratory Equipment		8 13 9
Contingencies		34 16 0
Audit Fee and contribution towards Headquarters		250 0 0
		15,798 16 1
Balance on 31st March, 1943.	£ s. d.	
Joint Colonial Fund	8,000 0 0	
Crown Agents for the Colonies	367 9 10	
Dr. S. A. Neave	22 8 1	
Dr. E. Cameron	15 15 2	
	8,405 13 1	
Add F.S.S.U. Suspense	233 2 10	
		8,638 15 11
		£24,437 12 0

I have examined the above Account. I have obtained all the information and explanations that I have required, and I certify, as the result of my audit, that in my opinion the above Account is correct.

(Signed) G. C. UPCOTT,
Comptroller and Auditor General.

(Signed) W. G. IVES,
Accountant to Council.

Investments on 31st March, 1943.

			£ s. d.
£1,040 5 2	Queensland	1922/47 Stock 3% at cost	1,000 0 0
£1,000 0 0	Cyprus	1956/66 ,, 4% ,,	950 0 0
£2,679 19 0	Funding	1960/90 ,, 4% ,,	1,869 12 6
£1,000 0 0	Jamaica	1952/62 ,, 4% ,,	940 0 0
£1,017 16 8	Kenya	1961/71 ,, 4½% ,,	998 15 0
£1,000 0 0	India	1950/55 ,, 4½% ,,	936 7 0
£1,000 0 0	Nigeria	1963 ,, 4% ,,	881 7 0
£8,738 0 10			£7,576 1 6

(Signed) G. E. BRYANT,
for Director.

(Signed) DAVID CHADWICK,
Secretary,
Executive Council, Imperial Agricultural Bureaux. 2.16.43.

IMPERIAL MYCOLOGICAL INSTITUTE, KEW, SURREY

Account of Receipts and Payments for the Year ended 31st March, 1943.

RECEIPTS.

	£	s.	d.	£	s.	d.
Balance on 1st April, 1942				5,876	14	0
Contributions:						
Empire Governments	7,812	14	11			
Sudan	125	0	0			
Egypt	50	0	0			
Imperial Chemical Industries	50	0	0			
				8,037	14	11
Dividends and Interest				200	3	2
Publications				799	8	5
				£14,914	0	6

PAYMENTS.

	£	s.	d.	£	s.	d.
Director's Salary				1,200	0	0
Superannuation				120	0	0
Scientific and Technical Staff Salaries				3,948	15	11
Superannuation				383	0	0
Clerical Staff Salaries				521	15	5
Superannuation				50	11	10
Laboratory Attendant				240	17	6
Superannuation				20	3	0
Part-time and overtime				15	10	9
National Insurances				21	11	7
Travelling				4	9	5
Library				16	1	9
Publications				700	4	8
Stationery, Postage, Telephone				83	11	7
Rent, Rates and Insurance				119	13	5
Light, Heat, Water, Cleaning				209	16	1
Laboratory Apparatus				15	0	9
Contingencies (including War Damage Insurance)				44	16	4
Audit and Contribution to Headquarters				120	0	0
				7,836	0	0
Balance on 31st March, 1943.						
Joint Colonial Fund	6,000	0	0			
Crown Agents for the Colonies	506	9	9			
Bank	463	16	5			
Petty Cash	1	11	7			
Stamps	9	11	1			
F.S.S.U. Suspense Account	96	1	8			
	7,077	10	6			
Add Income Tax Suspense Account		10	0			
				7,078	0	6
				£14,914	0	6

Investments at 31st March, 1943.
£2,077 15s. 4d. New Zealand 4½% 1944 at cost £2,000.

I have examined the above Account. I have obtained all the information and explanations that I have required, and I certify, as the result of my audit, that in my opinion the above Account is correct.

(Signed) G. C. UPCOTT,
Comptroller and Auditor General.

(Signed) W. G. IVES,
Accountant to Council.

(Signed) S. P. WILTSHIRE,
Director.

(Signed) DAVID CHADWICK,
Secretary,
Executive Council, Imperial Agricultural Bureaux.
21.6.43

IMPERIAL INSTITUTE OF ENTOMOLOGY (PARASITE LABORATORY)

ACCOUNT OF RECEIPTS AND PAYMENTS FOR THE YEAR ENDED 31ST MARCH, 1943.

RECEIPTS.

	Canada. $	Canada. £ s. d.	U.K. £ s. d.	Total. £ s. d.
Balance on 1st April, 1942	11836.32	2,647 18 11		2,647 18 11
General Account			526 11 0	
Capital Account			172 8 7	
				698 19 7
Contributions from Governments of the Empire	8493.00	1,900 0 0	3,794 11 3	5,694 11 3
Contribution for Special Projects	10713.14	2,396 13 6	125 0 0	2,521 13 6
Rent of Farnham House			400 0 0	400 0 0
Refund of proportion of Rates			21 17 7	21 17 7
Interest (Capital Account)			3 9 4	3 9 4
Cost of Stamp on F.S.U. Agreement	2.24	10 0		10 0
Remittances from United Kingdom	7088.00	1,600 0 0		1,600 0 0
	$38132.70	£8,545 2 5	5,043 17 9	13,589 0 2

PAYMENTS.

	Canada. $	Canada. £ s. d.	U.K. £ s. d.	Total. £ s. d.
Directional Staff.				
1. Superintendent	5530.20	1,237 3 8	65 0 0	1,302 3 8
Superannuation	231.25	51 14 8	71 15 1	123 9 9
Scientific and Technical.				
2. Assistant Entomologists	8136.20	1,820 3 8	128 13 10	1,948 17 6
Superannuation			165 17 6	165 17 6
3. Clerical Staff	2867.56	641 10 4	299 4 2	940 14 6
4. Laboratory Stewards	2979.75	666 12 3	87 2 5	753 14 8
Superannuation			78 14 10	78 14 10
5. Laboratory Maintenance	2395.78	535 19 5	189 8 6	725 7 11
Rates			17 17 6	17 17 6
Fire and other Insurances			70 19 3	70 19 3
6. Travelling expenses and repairs to car	4141.04	926 7 10	6 14 2	933 2 0
7. Shipments and postages	534.05	119 9 6	7 13 8	127 3 2
8. Library	290.03	64 17 9		64 17 9
Audit Fee			10 0 0	10 0 0
	27105.86	6,063 19 1	1,199 0 11	7,263 0 0
Exchange on £1,600		14 6 4		14 6 4
Transfer of Funds from the United Kingdom to Canada			1,600 0 0	1,600 0 0
Refund residue of advance by High Commissioner, New Zealand (Thistle project)			263 11 3	263 11 3
Balance on 31st March, 1943.				
Crown Agents for the Colonies.	General Account		162 18 0	
Do. do.	Capital Account		175 17 11	
R. C. Jeffery			1 2 3	
F.S.S.U Suspense			41 7 5	
			381 5 7	
Funds in course of transfer to Canada			1,600 0 0	
			1,981 5 7	1,981 5 7
W. R. Thompson	1500.00			
D. C. Lloyd	1675.32			
Treasury	7851.52			
	11026.84	2,466 17 0		2,466 17 0
	$38132.70	£8,545 2 5	5,043 17 9	13,589 0 2

I have examined the above Account. I have obtained all the information and explanations that I have required, and I certify as the result of my audit, that in my opinion the above Account is correct.

(Signed) G. C. UPCOTT,
Comptroller and Auditor General.

(Signed) W. G. IVES,
Accountant to Council.

(Signed) DAVID CHADWICK,
Secretary.
EXECUTIVE COUNCIL,
IMPERIAL AGRICULTURAL BUREAUX.
14th February, 1944.

APPENDIX I

IMPERIAL INSTITUTE OF ENTOMOLOGY

DIRECTOR'S REPORT FOR 1942-43

The outstanding event during the year under report was the retirement of the Institute's first Director, Sir Guy Marshall. Appointed Scientific Secretary of the Entomological Research Committee (Tropical Africa) in 1909, he became Director in 1913 of the Imperial organization which was known until 1930 as the Imperial Bureau of Entomology. Starting from small beginnings, the Institute has grown under his guidance into its present day widely extended activities.

The prolongation and extension of the World War has necessarily still further limited the contacts of the Institute, and this is reflected in some contraction of its activities and in the demand for its publications.

The work on parasites carried on in Great Britain by Dr. E. Cameron has already been described in the Reports on the Parasite Service, 1940–41 to 1942–43, pp. 13–18.

Identification of Insects

During the year under review the number of specimens received amounted to 10,674, as compared with 10,229 in the previous year. These insects were sent in by 65 (39) different correspondents, who were geographically distributed as follows: Africa 18 (15), America 5 (5), Asia 6 (2), Europe 33 (11), Oceania 3 (6), the numbers in brackets being those for the previous year.

The lists of identifications sent out totalled 109 (137), comprising 1,848 (2,579) names. The actual numbers of identifications sent to the various Dominions, Colonies, and other territories are as follows:—

AFRICA:				
Union of South Africa	70	(60)		
Southern Rhodesia	130	(44)		
Sudan	26	(110)		
Gold Coast	23	(54)		
Kenya	264	(424)		
Nigeria	93	(39)		
Nyasaland	95	(77)		
Sierra Leone	21	(51)		
Tanganyika Territory	5	(15)		
Uganda	253	(208)		
Other Territories	231	(426)		
			1,211	(1,508)
AMERICA:				
Canada	6	(—)		
West Indies	6	(5)		
Other Territories	—	(9)		
			12	(14)
ASIA:				
India and Burma	64	(236)		
Ceylon	—	(—)		
Cyprus	—	(—)		
Malaya	—	(104)		
Palestine	28	(151)		
Other Territories	15	(70)		
			107	(561)
OCEANIA:				
Australia and New Guinea	170	(188)		
New Zealand	10	(—)		
Fiji Islands	201	(190)		
Solomon Islands	35	(—)		
Other Islands	11	(—)		
			427	(378)
EUROPE:				
United Kingdom	83	(80)		
Other Countries	8	(38)		
			91	(118)

In addition to the named specimens which are returned to the senders, 1,850 (3,205) insects have been handed over to the British Museum, of which 50 (135) were types of species new to science, and among the remainder 37 (102) named species not previously represented in the National Collection. Some 1,380 named specimens were also presented to Aberdeen University.

During the year 26 papers (349 pp.) on insect taxonomy have been published by six members of the staff.

"Review of Applied Entomology"

The 30th (1942) volumes of the two Series of the "Review of Applied Entomology" comprised 812 pages as against 859 (1941) and 1,677 abstracts and titles as against 1,634. This apparent discrepancy arises from the fact that, from the June part onwards, an increase of well over 10 per cent. was made in the area occupied by the type on each page, thus effecting a considerable saving of paper.

There was a further reduction in the number of subscribers, due to hostilities in the Far East. Subscriptions fell from 499 (1941) to 447 (1942) for Series "A" and from 397 (1941) to 381 (1942) for Series "B." Total cash receipts were, however, maintained, as sales of back numbers realized £206 3s. 11d. as against £132 19s. 4d.

"Bulletin of Entomological Research"

The 33rd volume (1942) of this journal contains 284 pages as against 362 in the previous volume. It comprises 26 papers illustrated by numerous text figures and five plates.

The number of subscribers fell from 326 to 297, and the total cash receipts from £608 14s. 4d. to £568 14s. 4d. The total cost of production and distribution was £412 16s. 7d.

"Zoological Record, Part Insecta," Vol. 78 (1941)

The number of subscribers and the amount of profit to the Institute were approximately the same as in the previous year.

The annual contribution from the "Zoological Record Fund" of £100 towards the cost of preparation was received.

"Other Publications"

The sale of various publications, chiefly seven copies of "Locusts and Grasshoppers," and four copies of "Biological Control of an Insect in Fiji," realized about £10.

Locust Investigations, 1942-43*

The work of the Anti-Locust Research Centre was concentrated on a special war-time task of planning and directing an extensive campaign against the Desert Locust (*Schistocerca gregaria*) in the Middle East and East Africa, and on advising the Allied authorities in North and West Africa on the anti-locust measures to be carried out in those regions. An efficient execution of these tasks has been made possible by the knowledge of seasonal movements of locust swarms in each area, accumulated in the Anti-Locust Research Centre during the previous invasion cycle and kept up to date. This knowledge enabled the Centre to make forecasts of the developments

* This work, though centred at the Institute under Sir Guy Marshall, is not under the control of the Executive Council, but of the Inter-departmental Committee on Locust Control at the Colonial Office.

in the locust situation many months ahead, so that operations could be planned and preparations made well in time. A feature of the present anti-locust campaign in the Middle East and East Africa is, that it is based on a single concerted plan of action by all countries, instead of disjointed measures taken by them separately, as in the past. During the first year of the campaign, good progress has been made towards realizing this plan.

Regular reports on other African locusts continue to be received at the Centre, and a close watch is being kept on the situation, as outbreaks of other species happening at the present time might cause serious economic difficulties. A small incipient outbreak of the Red Locust (*Nomadacris septemfasciata*) was detected by the special Red Locust Control organization in Northern Rhodesia, and successfully controlled. The Migratory Locust (*Locusta migratorioides*) is kept under observation by a special control organization established by the French authorities on the river Niger.

Library

Accessions during the year numbered 149 (151) volumes and 684 (588) pamphlets. The Library now contains 10,814 volumes and 29,169 pamphlets. Parts of 325 (397) serial publications were received. The number of visitors who came for books and information was large, and loans 914 (710) exceeded all previous figures.

The catalogue of serial and official publications was maintained up to date. The author catalogue is up to date for books and separates and is now approximately 79 per cent. complete. The total number of volumes, the contents of which have been catalogued, amounts to 7,978, or nearly two-thirds of the Library.

Special thanks are due to the Royal College of Surgeons and to the Brooklyn Entomological Society, who generously presented volumes that enabled the Library to complete its sets of some journals.

S. A. NEAVE,
Director.

APPENDIX II

IMPERIAL MYCOLOGICAL INSTITUTE

DIRECTOR'S REPORT FOR 1942–43

Throughout the year the work of the Institute has been maintained and in some directions expanded in spite of increasing difficulties arising from war conditions.

Investigational Work

Supplements 5 and 6 to the *Review of Applied Mycology* listing new species of fungi were issued during the year.

Dr. Wiltshire read a short paper to the British Mycological Society on "A few thoughts on the situation in medical mycology."

In accordance with the recommendations of the Hankey Committee, samples of moulded foodstuffs began to be received from the Ministry of Food towards the end of the year. Major Dade dealt with six samples by the end of March, advising the Ministry of Food inspectors as to the cause of moulding and the possibility of preventing further loss.

Major Dade also began the examination of the large collection of cultures of species of *Aspergillus* maintained in the National Collection of Type Cultures, Lister Institute. Twenty cultures were examined and the results reported to the Curator. Major Dade also identified species of *Aspergillus* received from correspondents overseas.

In collaboration with Mr. E. W. Mason an investigation was commenced into a fungus causing moulding of runner beans preserved in salt and of the conditions necessary for its growth; this in turn led to a survey of the fungi with which *Torula epizoa* (to use one of the many names used for this fungus) has been confused. The work is proceeding as opportunity serves.

Major Dade devised an improved variant of Fleming's disc method of preserving cultures and demonstrated the method to the British Mycological Society.

Mr. Mason published a short note entitled "New species and old" in the *Trans. Brit. Mycol. Soc.*, xxv, pp. 433–434, 1942, in which he introduced the terms obligate and facultative synonyms, the distinction made being a useful and important one in systematic mycology. He also read two short papers to the Linnean Society, the first on the advantages that may accrue from the use of Professor Fleming's disc method of mounting moulds in culture and the other introducing Mr. Hansford's paper on the Fungi Imperfecti of Uganda, which includes numerous records of parasitic fungi.

Dr. Bisby and Dr. Ainsworth have collaborated during the past few years in compiling "A Dictionary of the Fungi," and this work was completed during the year and the MSS. sent to the printer. It aims at providing mycologists with a handy book of reference to the genera of fungi, their systematic position, and the distribution and number of the species. In addition, short accounts are given of the chief families, orders, and classes of Fungi and of the Bacteria and Lichens, explanation of words used in mycology, the common and scientific names of important fungi, and other details of interest to systematic and applied mycologists and to plant pathologists. It is hoped that it will serve as a useful tool to mycologists, plant pathologists, and others interested in fungi.

Dr. Bisby published the following papers during the year: BISBY (G. R.), Mycological nomenclature.—*Phytopathology*, xxxii, pp. 644–645, July, 1942. BISBY (G. R.) Who is the author? *Trans. Brit. Mycol. Soc.*, xxv, pp. 434–435, December, 1942. WAKEFIELD (E. M.) and BISBY (G. R.) List of Hyphomycetes recorded for Britain. Supplementary note. *Trans. Brit. Mycol. Soc.*, xxv, p. 427, December, 1942.

Dr. Bisby served as convenor of a sub-committee of the British Mycological Society dealing with the "List of Common British Plant Diseases," and spent a considerable time in the revision of this valuable list, the work involving correspondence with plant pathologists in the United States and elsewhere.

Dr. Bisby made much progress during the year in naming the rusts of Uganda and Sierra Leone, and the help of Dr. G. B. Cummins of Indiana in this connection is gratefully acknowledged.

Dr. Bisby commenced a critical revision of certain important moulds, including *Stachybotrys* and *Cladosporium*.

Dr. Ainsworth continued his studies of the Ustilaginales. He also devoted attention to the *Review of Applied Mycology*. A short note on some of the general principles involved was prepared for the *Annals of Applied Biology*.

Identification Work

Specimens were received from Great Britain, Eire, South Africa, New Zealand, Uganda, Kenya, Jamaica, Bermuda, and United States. Of the more interesting specimens, the following may be mentioned. One from England, blocking filters in flax rotting operations, was finally identified as almost certainly *Ascoidea rubescens*, previously known only in slime fluxes on trees in foreign countries. *Zygosporium parasiticum* (Grove) Bunting and Mason, previously only known here from a slide many years old was received in culture and identified. *Cylindrocladium scoparium* was identified from wattle roots in South Africa, where it is apparently new, and has been passed to East Malling Research Station, where Dr. Wormald is studying isolates of importance in the plum orchards. A sterile isolation from apple leaves from New Zealand was identified as almost certainly *Elsinoe pyri* (new to New Zealand) ; the identification is being confirmed at Washington. The two forms of the dill (*Peucedanum graveolons*) alternatively known as *Phoma anethi* and *Cercospora anethi* were received in association from the Empire for the first time from Dr. Nattrass, Kenya ; the connection has not been proved in culture. Supposed specimens from India of the apple-rotting fungus usually called *Sphaeropsis malorum* Berk. proved distinct from the genuine British species.

As usual Mr. Mason was consulted by authors on papers in preparation for publication, and gave liberally of his time for this work.

Information Service

Volume XXI of the *Review of Applied Mycology* and the index to Volume XX were published. The cost of printing and distributing the *Review* and the Supplements amounted to £700 4s. 8d., and the receipts from sales to £799 8s. 5d. The distribution of the *Review* in March, 1943, rose to 718 copies (480 subscribers). The number of papers abstracted in Volume XXI was 1,300 compared with 1,366 in the previous year, and the volume totalled 544 pages, excluding the index.

The reorganization of the catalogue of phytopathological papers was continued and the benefit of reorganization is now being felt. All papers abstracted and all separates added to the separate collection are now being automatically entered in the catalogue and in course of time a very valuable index will be built up, with practically no more effort than before.

The Distribution Maps of Plant Diseases met with an encouraging response during the year, the number of subscribers at the end of the year amounting to 180, including a special order for 24 complete sets of maps. Information concerning the distribution of diseases in the Belgian Congo was forwarded by the Chief of the Division of Phytopathology for incorporation in future maps, and this collaboration is much appreciated.

The nomenclature of viruses has constituted a major problem in the editing and indexing of the *Review of Applied Mycology*. At present no generally accepted nomenclature obtains. During the year a mimeographed memorandum was circulated to virus workers and plant pathologists in the overseas Empire and in the United States setting forth proposals for standardizing the common names of virus diseases as used in the *Review*. Very considerable support has been forthcoming for this preliminary list. A revised and enlarged list incorporating amendments suggested by various correspondents is being prepared. In the compiling of this list the support and co-operation of the Special Committee on Virus Nomenclature and Classification of the American Phytopathological Society and the Secretary of the International Botanical Congress Committee on Description and Nomenclature of Plant Viruses are particularly gratifying.

As indicated in last year's report the bacteriological nomenclature adopted by the *Review* has been revised in the light of the recent work by Dowson, Burkholder, Jensen and others. Hitherto the classification of plant pathogenic bacteria varied from country to country, and the degree of uniformity now attained marks a very considerable advance in this field.

The Institute has supplied information to the Ministry of Economic Warfare on a number of subjects during the year.

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